

## STATE OF TENNESSEE DEPARTMENT OF HEALTH **ENVIRONMENTAL LABORATORIES**

TDH: Lab Services JRL Lab Services - Jackson Regional Lab Jackson, TN 38301 731-426-0686

TDH: Lab Services KRL Lab Services - Knoxville Regional Lab Knoxville, TN 37920 865-549-5201

TDH: Lab Services NCL Lab Services - Nashville Central Lab Nashville, TN 37243 615-262-6300

Sent To:

**Greg Denton** 

TDEC-WPC

6th Floor, L & C Tower Annex

401 Church Street

Nashville, TN 37243-1534

Michael Atchley TDEC-WPC

Knoxville FO

3711 Middlebrook Pike Knoxville, TN 37921

K00002126 Lab ID:

Knoxville Regional Laboratory

Sampling Agency: TDEC: Division of Water Pollution Control

**Billing Code:** 

327.34-20

This is to certify that the following results were determined using good laboratory pratices and in accordance with federal or state approved methodologies.

Analytical Supervisor

K00002126001

**Project Name:** 

TVA-Ash Spill

Sample Description:

Emory River mile 4.0

Sampler Project Name: TVA ash spill

**Project Site No.:** 

Station No.:

EMORY004.0RO

Date/Time Collected:

01/22/2009 10:50

Sampler's Name:

L. Everett

County:

ROANE - 73

Sample Matrix: EFO:

Water

Sampling Agency:

Knoxville

**Billing Code:** 

TDEC-WPC 327.34-20

Send Report To:

**TDEC-WPC** 

Agency Invoiced: **Priority Date:** 

TDEC-WPC 01/28/2009

Date/Time Received:

01/23/2009 13:25

Received By:

Ken Hitchman

**Field Determinations** 

pH:

7.04

pH Units

Chlorine, residual:

Conductivity:

39

uMHO

Temperature: 1.17

Dissolved Oxygen: 10.24

mg/L

Other:

Flow:

**CFS** 

TEST: Alkalinity, Total	ME.						
ANALYTE	RESULT	UNITS	MDL	MQL	ANALYZED BY:	DATE	
Total Alkalinity	16	mg/L	3.8	10	S Burchfield	1/25/2009	

TEST: Hardness, Calcium	ME <sup>-</sup>					
ANALYTE	RESULT	UNITS	MDL	MQL	ANALYZED BY:	DATE
Calcium hardness	20	mg/L	0.7	1	P Leathers	1/24/2009

TEST: Residue, Settleable	METHOD: SM 2540F						
ANALYTE	RESULT	UNITS	MDL	MQL	ANALYZED BY:	DATE	
Settleable Residue	U	ml/L	0.10	0.10	P Leathers	1/24/2009	

TEST: Residue, Suspended	METHOD: SM 2540D						
ANALYTE	RESULT	RESULT UNITS MDL		MQL	ANALYZED BY:	DATE	
Total Suspended Solids	U	mg/L	10	10	S Burchfield	1/24/2009	

J - Estimated value between MDL and MQL

**MDL - Method Detection Limit** MQL - Method Quantitation Limit

K00002126002

**Project Name:** 

TVA-Ash Spill

Sample Description:

Emory River mile 2.1

**Project Site No.:** 

Sampler Project Name: TVA ash spill

Station No.:

EMORY002.1RO

Date/Time Collected:

Sampler's Name:

01/22/2009 11:46 L. Everett

County:

**ROANE - 73** 

Sample Matrix: EFO:

Water

Sampling Agency:

Knoxville

**Billing Code:** 

TDEC-WPC 327.34-20

Send Report To: Agency Invoiced:

TDEC-WPC TDEC-WPC

**Priority Date:** 

01/28/2009

Date/Time Received:

01/23/2009 13:25

Received By:

Ken Hitchman

**Field Determinations** 

pH:

7.04

pH Units

**uMHO** 

Chlorine, residual:

Conductivity: Temperature:

40

1.78

**Dissolved Oxygen:** 

Other:

Flow:

**CFS** 

TEST: Alkalinity, Total	MET					
ANALYTE	RESULT	UNITS	MDL	MQL	ANALYZED BY:	DATE
Total Alkalinity	14	mg/L	3.8	10	S Burchfield	1/25/2009

TEST: Hardness, Calcium	METHOD: SM 3500-Ca D				,	
ANALYTE	RESULT	UNITS	MDL	MQL	ANALYZED BY:	DATE
Calcium hardness	22	mg/L	0.7	1	P Leathers	1/24/2009

TEST: Residue, Settleable	ME:					
ANALYTE	RESULT	UNITS	MDL	MQL	ANALYZED BY:	DATE
Settleable Residue	U	ml/L	0.10	0.10	P Leathers	1/24/2009

TEST: Residue, Suspended	METHOD: SM 2540D					
ANALYTE	RESULT	UNITS	MDL	MQL	ANALYZED BY:	DATE
Total Suspended Solids	U	mg/L	10	10	S Burchfield	1/24/2009

J - Estimated value between MDL and MQL

**MDL - Method Detection Limit** 

**MQL - Method Quantitation Limit** 

K00002126003

Project Name: Sample Description: TVA-Ash Spill

Sampler Project Name: TVA ash spill

Emory River mile 1.7

Project Site No.:

**Station No.:** 

EMORY001.7RO

**Date/Time Collected:** Sampler's Name:

01/22/2009 12:00

County:

L. Everett **ROANE - 73** 

Sample Matrix: EFO:

Water

Sampling Agency: **Billing Code:** 

Knoxville TDEC-WPC

Send Report To: Agency Invoiced: 327.34-20 TDEC-WPC TDEC-WPC

**Priority Date:** 

01/28/2009

Date/Time Received:

01/23/2009 13:25

Received By:

Ken Hitchman

**Field Determinations** 

:Hq

7.95

pH Units

Chlorine, residual:

Conductivity:

182

uMHO

Temperature:

5.1

Dissolved Oxygen: 10.47

mg/L

Other:

Flow:

**CFS** 

TEST: Alkalinity, Total	METHOD: EPA 310.2					
ANALYTE	RESULT	UNITS	MDL	MQL	ANALYZED BY:	DATE
Total Alkalinity	110	mg/L	3.8	10	S Burchfield	1/25/2009

TEST: Hardness, Calcium	METHOD: SM 3500-Ca D					
ANALYTE	RESULT	UNITS	MDL	MQL	ANALYZED BY:	DATE
Calcium hardness	90	mg/L	0.7	1	P Leathers	1/24/2009

TEST: Residue, Settleable	ME			- <del> </del>		
ANALYTE	RESULT	UNITS	MDL	MQL ANALYZI	ANALYZED BY:	DATE
Settleable Residue	3.2	ml/L	0.10	0.10	P Leathers	1/24/2009

TEST: Residue, Suspended	METHOD: SM 2540D					
ANALYTE	RESULT	UNITS	MDL	MQL	ANALYZED BY:	DATE
Total Suspended Solids	1200	mg/L	10	10	S Burchfield	1/24/2009

J - Estimated value between MDL and MQL

MDL - Method Detection Limit **MQL - Method Quantitation Limit** 

K00002126004

**Project Name:** 

TVA-Ash Spill

Sample Description:

Emory River mile 0.1

Sampler Project Name: TVA ash spill

**Project Site No.:** 

**Station No.:** 

EMORY000.1RO

Date/Time Collected:

01/22/2009 12:13

Sampler's Name: County:

L. Everett

Sample Matrix:

ROANE - 73

EFO:

Water

Sampling Agency:

Knoxville

**Billing Code:** 

TDEC-WPC 327.34-20

**Send Report To:** Agency Invoiced: TDEC-WPC

**Priority Date:** 

TDEC-WPC 01/28/2009

Date/Time Received:

01/23/2009 13:25

Received By:

Ken Hitchman

**Field Determinations** 

pH:

7.97

pH Units

Chlorine, residual:

Conductivity:

193

uMHO

Temperature: Dissolved Oxygen: 10.20

5.64

mg/L

Other:

Flow:

**CFS** 

TEST: Alkalinity, Total	METHOD: EPA 310.2					
ANALYTE	RESULT	UNITS	MDL	MQL	ANALYZED BY:	DATE
Total Alkalinity	120	mg/L	3.8	10	S Burchfield	1/25/2009

TEST: Hardness, Calcium	WE.	THOD: SM 350	0-Ca D			
ANALYTE	RESULT	UNITS	MDL	MQL	ANALYZED BY:	DATE
Calcium hardness	94	mg/L	0.7	1	P Leathers	1/24/2009

TEST: Residue, Settleable	METHOD: SM 2540F					
ANALYTE	RESULT	UNITS	MDL	MQL	ANALYZED BY:	DATE
Settleable Residue	0.25	ml/L	0.10	0.10	P Leathers	1/24/2009

TEST: Residue, Suspended	ME.					
ANALYTE	RESULT	UNITS	MDL	MQL	ANALYZED BY:	DATE
Total Suspended Solids	66	mg/L	10	10	S Burchfield	1/24/2009

J - Estimated value between MDL and MQL

MDL - Method Detection Limit

**MQL - Method Quantitation Limit** 

K00002126005

**Project Name:** 

TVA-Ash Spill

Sample Description:

Clinch River mile 2.3 near Hwy 70 Bridge

Sampler Project Name: TVA ash spill

**Project Site No.:** 

**Station No.:** 

CLINC002.3RO

**Date/Time Collected:** 

01/22/2009 12:26

Sampler's Name: County:

L. Everett

Sample Matrix:

ROANE - 73

EFO:

Water Knoxville

Sampling Agency:

TDEC-WPC

**Billing Code:** Send Report To: 327.34-20 TDEC-WPC

Agency Invoiced: **Priority Date:** 

TDEC-WPC 01/28/2009

Date/Time Received:

01/23/2009 13:25

Received By:

Ken Hitchman

**Field Determinations** 

pH:

7.9

pH Units

Chlorine, residual:

Conductivity:

178 7.11

**uMHO** 

Temperature: Dissolved Oxygen: 10.10

mg/L

Other:

Flow:

**CFS** 

TEST: Alkalinity, Total	MET					
ANALYTE	RESULT	UNITS	MDL	MQL	ANALYZED BY:	DATE
Total Alkalinity	110	mg/L	3.8	10	S Burchfield	1/25/2009

TEST: Hardness, Calcium	MET					
ANALYTE	RESULT	UNITS	MDL	MQL	ANALYZED BY:	DATE
Calcium hardness	96	mg/L	0.7	1	P Leathers	1/24/2009

TEST: Residue, Settleable	METHOD: SM 2540F					
ANALYTE	RESULT	UNITS	MDL	MQL	ANALYZED BY:	DATE
Settleable Residue	U	ml/L	0.10	0.10	P Leathers	1/24/2009

TEST: Residue, Suspended	ME.					
ANALYTE	RESULT	UNITS	MDL	MQL	ANALYZED BY:	DATE
Total Suspended Solids	U	mg/L	10	10	S Burchfield	1/24/2009

J - Estimated value between MDL and MQL

**MDL - Method Detection Limit** 

**MQL - Method Quantitation Limit** 

K00002126006

**Project Name:** 

TVA-Ash Spill

**Field Determinations** 

Dissolved Oxygen: 10.04

Conductivity:

Temperature:

8.0

199

6.10

pH Units

uMHO

mg/L

**CFS** 

pH:

Other:

Flow:

**Sample Description:** Sampler Project Name: TVA ash spill

Clinch River mile 4.5 near Sugar Grove Valley R Chlorine, residual:

**Project Site No.:** 

Station No.:

CLINC004.5RO

**Date/Time Collected:** 

01/22/2009 12:45

Sampler's Name:

L. Everett

County: Sample Matrix: **ROANE - 73** 

Water

EFO:

Knoxville

**Sampling Agency: Billing Code:** 

TDEC-WPC 327.34-20

Send Report To: Agency Invoiced:

TDEC-WPC TDEC-WPC 01/28/2009

Date/Time Received:

01/23/2009 13:25

Received By:

**Priority Date:** 

Ken Hitchman

TEST: Alkalinity, Total	ME.	METHOD: EPA 310.2				
ANALYTE	RESULT	UNITS	MDL	MQL	ANALYZED BY:	DATE
Total Alkalinity	120	mg/L	3.8	10	S Burchfield	1/25/2009

TEST: Hardness, Calcium	METHOD: SM 3500-Ca D					
ANALYTE	RESULT	UNITS	MDL	MQL	ANALYZED BY:	DATE
Calcium hardness	94	mg/L	0.7	1	P Leathers	1/24/2009

TEST: Residue, Settleable	METHOD: SM 2540F					
ANALYTE	RESULT	UNITS	MDL	MQL	ANALYZED BY:	DATE
Settleable Residue	Ü	ml/L	0.10	0.10	P Leathers	1/24/2009

TEST: Residue, Suspended	METHOD: SM 2540D					
ANALYTE	RESULT	UNITS	MDL	MQL	ANALYZED BY:	DATE
Total Suspended Solids	U	mg/L	10	10	S Burchfield	1/24/2009

J - Estimated value between MDL and MQL

**MDL. - Method Detection Limit** 

**MQL - Method Quantitation Limit** 



## STATE OF TENNESSEE DEPARTMENT OF HEALTH **ENVIRONMENTAL LABORATORIES**

TDH: Lab Services JRL Lab Services - Jackson Regional Lab Jackson, TN 38301 731-426-0686

TDH: Lab Services KRL Lab Services - Knoxville Regional Lab Knoxville, TN 37920 865-549-5201

TDH: Lab Services NCL Lab Services - Nashville Central Lab Nashville, TN 37243 615-262-6300

Sent To:

**Greg Denton** 

TDEC-WPC

6th Floor, L & C Tower Annex

401 Church Street Nashville, TN 37243-1534 Michael Atchley TDEC-WPC

Knoxville FO

3711 Middlebrook Pike Knoxville, TN 37921

K00002126 Lab ID:

**Knoxville Regional Laboratory** 

Sampling Agency: TDEC: Division of Water Pollution Control

**Billing Code:** 

327.34-20

This is to certify that the following results were determined using good laboratory pratices and in accordance with federal or state approved methodologies.

Analytical Supervisor

K00002126001

**Project Name:** 

TVA-Ash Spill

**Sample Description:** Emory River mile 4.0

Sampler Project Name: TVA ash spill

**Project Site No.:** Station No.:

EMORY004.0RO

**Date/Time Collected:** Sampler's Name:

01/22/2009 10:50

County:

L. Everett **ROANE - 73** 

**Sample Matrix:** 

Water

EFO: Sampling Agency: Knoxville **TDEC-WPC** 327.34-20

**Billing Code:** Send Report To: Agency Invoiced: **Priority Date:** 

TDEC-WPC TDEC-WPC 01/28/2009

**Date/Time Received:** 

01/23/2009 13:25

Received By:

Ken Hitchman

**Field Determinations** 

pH:

7.04

pH Units

uMHO

Chlorine, residual: Conductivity: Temperature:

39

1.17

Dissolved Oxygen: 10.24

Other:

mg/L

Flow:

**CFS** 

TEST: Digestion Metals	MET					
ANALYTE	RESULT UNITS MDL				ANALYZED BY:	DATE
Digestion Metals	01/26/2009		<del></del>		A Wilson	1/26/2009

TEST: ICP	METHOD: EPA 200.7							
ANALYTE	RESULT	UNITS	MDL	MQL	ANALYZED BY:	DATE		
Iron	190	μg/L	2.9	10	A Bass	1/27/2009		

TEST: ICP-MS	MET	METHOD: EPA 200.8					
ANALYTE	RESULT	RESULT UNITS MDL		MQL	ANALYZED BY:	DATE	
Aluminum	120	μg/L	6.4	10	M Pattanayek	1/27/2009	
Antimony	2.2	μg/L	0.33	1	M Pattanayek	1/27/2009	
Arsenic	U	μg/L	0.93	5	M Pattanayek	1/27/2009	
Barium	23	μg/L	2.5	5	M Pattanayek	1/27/2009	
Beryllium	U	μg/L	0.11	1	M Pattanayek	1/27/2009	
Cadmium	U.	μg/L	0.41	1	M Pattanayek	1/27/2009	
Chromium	U	μg/L	2.0	5	M Pattanayek	1/27/2009	
Cobalt	0.32J	μg/L	0.04	. 1	M Pattanayek	1/27/2009	
Copper	1.3	μg/L	0.38	1	M Pattanayek	1/27/2009	
Lead	0.24J	μg/L	0.10	1	M Pattanayek	1/27/2009	
Manganese	54	μg/L	0.42	1	M Pattanayek	1/27/2009	
Nickel	1.3	μg/L	0.25	1	M Pattanayek	1/27/2009	
Selenium	u	μg/L	1.3	5	M Pattanayek	1/27/2009	
Silver	0.03J	μg/L	0.03	0.25	M Pattanayek	1/27/2009	
Thallium	0.32J	μg/L	0.03	1	M Pattanayek	1/27/2009	
Vanadium	U	μg/L	3.4	5	M Pattanayek	1/27/2009	
Zinc	3.9J	μg/L	1.9	5	M Pattanayek	1/27/2009	

K00002126001

**Project Name:** 

TVA-Ash Spill

Sample Description:

Sampler Project Name: TVA ash spill

Emory River mile 4.0

**Project Site No.:** 

**Station No.:** 

EMORY004.0RO

Date/Time Collected:

01/22/2009 10:50

Sampler's Name: County:

L. Everett

Sample Matrix:

**ROANE - 73** 

EFO: Sampling Agency: Water Knoxville

**Billing Code:** 

**TDEC-WPC** 327.34-20

**Send Report To: Agency Invoiced:** 

TDEC-WPC **TDEC-WPC** 01/28/2009

Date/Time Received:

01/23/2009 13:25

Received By:

**TEST: Mercury** 

**Priority Date:** 

Ken Hitchman

METHOD: EPA 245.1	

**Field Determinations** 

Dissolved Oxygen: 10.24

Chlorine, residual:

Conductivity:

Temperature:

7.04

39

1.17

pH Units

**uMHO** 

mg/L

**CFS** 

pH:

Other:

Flow:

**ANALYTE RESULT** UNITS MDL MQL **ANALYZED BY:** DATE Mercury U μg/L 0.13 0.2 A Wilson 1/27/2009

J - Estimated value between MDL and MQL

MDL - Method Detection Limit

**MQL - Method Quantitation Limit** 

K00002126002

**Project Name:** 

TVA-Ash Spill

**Sample Description:** 

Emory River mile 2.1

Sampler Project Name: TVA ash spill

**Project Site No.:** 

**Station No.:** 

EMORY002.1RO

Date/Time Collected: Sampler's Name:

01/22/2009 11:46

County: **Sample Matrix:**  L. Everett ROANE - 73

EFO:

Water

Sampling Agency: **Billing Code:** 

Knoxville TDEC-WPC 327.34-20

Send Report To: Agency Invoiced: **Priority Date:** 

TDEC-WPC TDEC-WPC 01/28/2009

Date/Time Received:

01/23/2009 13:25

Received By:

Ken Hitchman

**Field Determinations** 

pH: 7.04

Chlorine, residual:

Conductivity:

40 1.78 pH Units uMHO

**CFS** 

Temperature:

**Dissolved Oxygen:** 

Other:

Flow:

TEST: Digestion Metals	MET					
ANALYTE	RESULT UNITS MDL				ANALYZED BY:	DATE
Digestion Metals	01/26/2009				A Wilson	1/26/2009

TEST: ICP	METHOD: EPA 200.7							
ANALYTE	RESULT	UNITS	MDL	MQL	ANALYZED BY:	DATE		
Iron	160	μg/L	2.9	10	A Bass	1/27/2009		

TEST: ICP-MS	MET	THOD: EPA 20	0.8	.8				
ANALYTE	RESULT	RESULT UNITS MDL		MQL	ANALYZED BY:	DATE		
Aluminum	130	μg/L	6.4	10	M Pattanayek	1/27/2009		
Antimony	0.37J	μg/L	0.33	1	M Pattanayek	1/27/2009		
Arsenic	U	μg/L	0.93	5	M Pattanayek	1/27/2009		
Barium	24	μg/L	2.5	5	M Pattanayek	1/27/2009		
Beryllium	U	μg/L	0.11	1	M Pattanayek	1/27/2009		
Cadmium	U	μg/L	0.41	1	M Pattanayek	1/27/2009		
Chromium	U	μg/L	2.0	5	M Pattanayek	1/27/2009		
Cobalt	0.35J	μg/L	0.04	1	M Pattanayek	1/27/2009		
Copper	0.55J	μg/L	0.38	1	M Pattanayek	1/27/2009		
Lead	0.22J	μg/L	0.10	1	M Pattanayek	1/27/2009		
Manganese	51	μg/L	0.42	1	M Pattanayek	1/27/2009		
Nickel	1.3	μg/L	0.25	1	M Pattanayek	1/27/2009		
Selenium	U	μg/L	1.3	5	M Pattanayek	1/27/2009		
Silver	U	μg/L	0.03	0.25	M Pattanayek	1/27/2009		
Thallium	0.17J	μg/L	0.03	1	M Pattanayek	1/27/2009		
Vanadium	U	μg/L	3.4	5	M Pattanayek	1/27/2009		
Zinc	3.2J	μg/L	1.9	5	M Pattanayek	1/27/2009		

K00002126002

**Project Name:** 

TVA-Ash Spill

Sample Description:

Emory River mile 2.1

Sampler Project Name: TVA ash spill

**Project Site No.:** 

Station No.:

EMORY002.1RO

**Date/Time Collected:** 

01/22/2009 11:46

Sampler's Name: County:

L. Everett

Sample Matrix:

**ROANE - 73** Water

EFO: **Sampling Agency:**  Knoxville

**Billing Code:** 

TDEC-WPC 327.34-20

**Send Report To: Agency Invoiced: Priority Date:** 

TDEC-WPC TDEC-WPC 01/28/2009

Date/Time Received:

01/23/2009 13:25

Received By:

TEST: Mercury

Ken Hitchman

MET	HOD: EPA 24	5.1			
RESULT	UNITS	MDL	MQL	ANALYZED BY:	DATE

**Field Determinations** 

Chlorine, residual:

**Dissolved Oxygen:** 

Conductivity:

Temperature:

pH:

Other:

Flow:

7.04

40

1.78

pH Units

**uMHO** 

**CFS** 

ANALYTE Mercury U μg/L 0.13 0.2 A Wilson 1/27/2009

J - Estimated value between MDL and MQL

**MDL - Method Detection Limit** 

**MQL - Method Quantitation Limit** 

K00002126003

**Project Name:** 

TVA-Ash Spill Emory River mile 1.7

**Sample Description:** Sampler Project Name: TVA ash spill

**Project Site No.:** 

**Station No.:** 

EMORY001.7RO

Date/Time Collected: Sampler's Name:

01/22/2009 12:00

County:

L. Everett ROANE - 73

Sample Matrix: EFO:

Water

Sampling Agency: **Billing Code:** 

Knoxville TDEC-WPC 327.34-20

**Send Report To:** Agency Invoiced: **Priority Date:** 

**TDEC-WPC** TDEC-WPC 01/28/2009

Date/Time Received:

01/23/2009 13:25

Received By:

Ken Hitchman

**Field Determinations** 

pH:

Chlorine, residual:

Conductivity: Temperature:

182

7.95

pH Units **uMHO** 

5.1 Dissolved Oxygen: 10.47

mg/L

Other:

Flow:

**CFS** 

TEST: Digestion Metals	METHOD: EPA 200.2					
ANALYTE	RESULT	RESULT UNITS MDL MQL				
Digestion Metals	01/26/2009	01/26/2009			A Wilson	1/26/2009

TEST: ICP	METHOD: EPA 200.7							
ANALYTE	RESULT UNITS MDL MQL ANALYZED BY: DA							
Iron	10000	μg/L	2.9	10	A Bass	1/27/2009		

TEST: ICP-MS	ME	ΓHOD: EPA 20	0.8			
ANALYTE	RESULT	UNITS	MDL	MQL	ANALYZED BY:	DATE
Aluminum	15000	µg/L	640.0	1000	M Pattanayek	1/27/2009
Antimony	1.2	μg/L	0.33	1	M Pattanayek	1/27/2009
Arsenic	19	μg/L	0.93	5	M Pattanayek	1/27/2009
Barium	310	μg/L	2.5	5	M Pattanayek	1/27/2009
Beryllium	1.6	μg/L	0.11	1	M Pattanayek	1/27/2009
Cadmium	0.60J	μg/L	0.41	1	M Pattanayek	1/27/2009
Chromium	8.0	μg/L	2.0	5	M Pattanayek	1/27/2009
Cobalt	7.8	μg/L	0.04	1	M Pattanayek	1/27/2009
Copper	22	μg/L	0.38	1	M Pattanayek	1/27/2009
Lead	16	μg/L	0.10	1	M Pattanayek	1/27/2009
Manganese	330	μg/L	0.42	1	M Pattanayek	1/27/2009
Nickel	13	μg/L	0.25	1	M Pattanayek	1/27/2009
Selenium	υ	μg/L	1.3	5	M Pattanayek	1/27/2009
Silver	0.10J	μg/L	0.03	0.25	M Pattanayek	1/27/2009
Thallium	1.1	μg/L	0.03	1	M Pattanayek	1/27/2009
Vanadium	43	μg/L	3.4	5	M Pattanayek	1/27/2009
Zinc	21	μg/L	1.9	5	M Pattanayek	1/27/2009

K00002126003

**Project Name:** 

TVA-Ash Spill

Sample Description:

Emory River mile 1.7

Sampler Project Name: TVA ash spill

**Project Site No.:** 

Station No.:

EMORY001.7RO

**Date/Time Collected:** 

01/22/2009 12:00

Sampler's Name: County:

EFO:

L. Everett

Sample Matrix:

**ROANE - 73** 

Water Knoxville

**Sampling Agency: Billing Code:** 

TDEC-WPC

Send Report To: Agency Invoiced: 327.34-20 **TDEC-WPC** TDEC-WPC 01/28/2009

**Priority Date:** Date/Time Received:

01/23/2009 13:25

Received By:

**TEST: Mercury** ANALYTE

Ken Hitchman

	ME	THO	D:	EP	A 24	5.1	
11	Ŧ		111	HTC	`		,

**Field Determinations** 

Dissolved Oxygen: 10.47

MOI

MINI

Chlorine, residual:

Conductivity:

Temperature:

:Hq

Other:

Flow:

7.95

182

5.1

ANALYZED DV.

pH Units

**uMHO** 

mg/L

**CFS** 

DATE

ANALTIC	RESULI	UNITS	MIDE	INICE	ANALIZED BI.	DATE
Mercury	U	μg/L	0.13	0.2	A Wilson	1/27/2009

DECLU T

J - Estimated value between MDL and MQL

**MDL - Method Detection Limit** 

MQL - Method Quantitation Limit

K00002126004

**Project Name:** 

TVA-Ash Spill

Sample Description: Sampler Project Name: TVA ash spill

Emory River mile 0.1

**Project Site No.:** 

**Station No.:** 

EMORY000.1RO

**Date/Time Collected:** Sampler's Name:

01/22/2009 12:13

County:

L. Everett

Sample Matrix:

**ROANE - 73** Water

EFO: Sampling Agency:

Knoxville TDEC-WPC

**Billing Code:** Send Report To: Agency Invoiced:

327.34-20 TDEC-WPC TDEC-WPC

**Priority Date:** Date/Time Received: 01/28/2009 01/23/2009 13:25

Received By:

**Digestion Metals** 

Iron

Ken Hitchman

01/26/2009

150

**TEST: Digestion Metals** METHOD: EPA 200.2 **ANALYTE RESULT** UNITS MDL MQL ANALYZED BY: DATE

**Field Determinations** 

Dissolved Oxygen: 10.20

Chlorine, residual:

Conductivity:

Temperature:

7.97

193

5.64

A Wilson

A Bass

pH Units

**uMHO** 

mg/L

**CFS** 

1/26/2009

1/27/2009

pH:

Other:

Flow:

TEST: ICP METHOD: EPA 200.7 **ANALYTE** RESULT **UNITS** MDL MQL **ANALYZED BY:** DATE

μg/L

2.9

10

TEST: ICP-MS	WE.	METHOD: EPA 200.8				
ANALYTE	RESULT	UNITS	MDL	MQL	ANALYZED BY:	DATE
Aluminum	130	μg/L	6.4	10	M Pattanayek	1/27/2009
Antimony	U	μg/L	0.33	1	M Pattanayek	1/27/2009
Arsenic	U	μg/L	0.93	5	M Pattanayek	1/27/2009
Barium	35	μg/L	2.5	5	M Pattanayek	1/27/2009
Beryllium	U	μg/L	0.11	1	M Pattanayek	1/27/2009
Cadmium	U	μg/L	0.41	1	M Pattanayek	1/27/2009
Chromium	U	μg/L	2.0	5	M Pattanayek	1/27/2009
Cobalt	0.19J	μg/L	0.04	1	M Pattanayek	1/27/2009
Copper	1.3	μg/L	0.38	1	M Pattanayek	1/27/2009
Lead	0.32J	μg/L	0.10	1	M Pattanayek	1/27/2009
Manganese	30	μg/L	0.42	1	M Pattanayek	1/27/2009
Nickel	0.99J	μg/L	0.25	1	M Pattanayek	1/27/2009
Selenium	U	μg/L	1.3	5	M Pattanayek	1/27/2009
Silver	U .	μg/L	0.03	0.25	M Pattanayek	1/27/2009
Thallium	0.13J	μg/L	0.03	1	M Pattanayek	1/27/2009
Vanadium	U	μg/L	3.4	5	M Pattanayek	1/27/2009
Zinc	2.5J	μg/L	1.9	5	M Pattanayek	1/27/2009

K00002126004

**Project Name:** 

TVA-Ash Spill

Sample Description:

Emory River mile 0.1

Sampler Project Name: TVA ash spill

**Project Site No.:** 

**Station No.:** 

EMORY000.1RO

**Date/Time Collected:** 

01/22/2009 12:13

Sampler's Name: County:

L. Everett

Sample Matrix:

**ROANE - 73** 

EFO:

Water

Sampling Agency:

Knoxville TDEC-WPC

**Billing Code: Send Report To:**  327.34-20 TDEC-WPC TDEC-WPC

**Agency Invoiced: Priority Date:** 

01/28/2009

Date/Time Received:

01/23/2009 13:25

Received By:

**TEST: Mercury** 

Ken Hitchman

**Field Determinations** 

Dissolved Oxygen: 10.20

Chlorine, residual:

Conductivity:

Temperature:

pH:

Other:

Flow:

7.97

193

5.64

pH Units

**uMHO** 

mg/L

**CFS** 

ANALYTE	RESULT	UNITS	MDL	MQL	ANALYZED BY:	DATE
Mercury	0.17J	μg/L	0.13	0.2	A Wilson	1/27/2009

J - Estimated value between MDL and MQL

**MDL - Method Detection Limit** 

**MQL - Method Quantitation Limit** 

K00002126005

**Project Name:** 

TVA-Ash Spill

Sample Description:

Clinch River mile 2.3 near Hwy 70 Bridge

01/26/2009

Sampler Project Name: TVA ash spill

**Project Site No.:** 

**Station No.:** 

CLINC002.3RO

**Date/Time Collected:** 

01/22/2009 12:26

Sampler's Name: County:

L. Everett

Sample Matrix:

**ROANE - 73** 

EFO:

Water Knoxville

Sampling Agency: **Billing Code:** 

TDEC-WPC 327.34-20

**Send Report To:** Agency Invoiced:

TDEC-WPC TDEC-WPC 01/28/2009

**Priority Date: Date/Time Received:** 

01/23/2009 13:25

Received By:

**Digestion Metals** 

Ken Hitchman

TEST: Digestion Metals	MET	HOD: EPA 20	0.2			
ANALYTE	RESULT	UNITS	MDL	MQL	ANALYZED BY:	DATE

**Field Determinations** 

Dissolved Oxygen: 10.10

Chlorine, residual:

Conductivity:

Temperature:

7.9

178

7.11

A Wilson

pH:

Other:

Flow:

pH Units

uMHO

mg/L

**CFS** 

1/26/2009

TEST: ICP METHOD: EPA 200.7						
ANALYTE	RESULT	UNITS	MDL	MQL	ANALYZED BY:	DATE
Iron	170	μg/L	2.9	10	A Bass	1/27/2009

TEST: ICP-MS	ME					
ANALYTE	RESULT	UNITS	MDL	MQL	ANALYZED BY:	DATE
Aluminum	170	μg/L	6.4	10	M Pattanayek	1/27/2009
Antimony	U	μg/L	0.33	1	M Pattanayek	1/27/2009
Arsenic	U	μg/L	0.93	5	M Pattanayek	1/27/2009
Barium	36	μg/L	2.5	5	M Pattanayek	1/27/2009
Beryllium	U	μg/L	0.11	1	M Pattanayek	1/27/2009
Cadmium	U	μg/L	0.41	1	M Pattanayek	1/27/2009
Chromium	U	μg/L	2.0	5	M Pattanayek	1/27/2009
Cobalt	0.28J	μg/L	0.04	1	M Pattanayek	1/27/2009
Copper	1.8	μg/L	0.38	1	M Pattanayek	1/27/2009
Lead	0.33J	μg/L	0.10	1	M Pattanayek	1/27/2009
Manganese	36	μg/L	0.42	1	M Pattanayek	1/27/2009
Nickel	1.2	μg/L	0.25	1	M Pattanayek	1/27/2009
Selenium	U	μg/L	1.3	5	M Pattanayek	1/27/2009
Silver	U	μg/L	0.03	0.25	M Pattanayek	1/27/2009
Thallium	0.10J	μg/L	0.03	1	M Pattanavek	1/27/2009
Vanadium	U	μg/L	3.4	5	M Pattanayek	1/27/2009
Zinc	2.6J	μg/L	1.9	5	M Pattanayek	1/27/2009

K00002126005

**Project Name:** 

TVA-Ash Spill

Sample Description:

Clinch River mile 2.3 near Hwy 70 Bridge

Sampler Project Name: TVA ash spill

**Project Site No.:** 

**Station No.:** 

CLINC002.3RO

**Date/Time Collected:** 

Sampler's Name:

01/22/2009 12:26

County:

L. Everett **ROANE - 73** 

Sample Matrix: EFO:

Water

Sampling Agency: **Billing Code:** 

Knoxville **TDEC-WPC** 327.34-20

**Send Report To: Agency Invoiced:** 

TDEC-WPC TDEC-WPC 01/28/2009

**Priority Date:** Date/Time Received:

01/23/2009 13:25

Received By:

Ken Hitchman

TEST: Mercury	ME.	ΓHOD: EPA 24	5.1			
ANALYTE	RESULT	UNITS	MDL	MQL	ANALYZED BY:	DATE
Mercury	U	μg/L	0.13	0.2	A Wilson	1/27/2009

**Field Determinations** 

Dissolved Oxygen: 10.10

Chlorine, residual:

Conductivity:

Temperature:

7.9

178

7.11

pH Units

**uMHO** 

mg/L

**CFS** 

pH:

Other:

Flow:

J - Estimated value between MDL and MQL

**MDL - Method Detection Limit** 

**MQL - Method Quantitation Limit** 

K00002126006

**Project Name:** 

TVA-Ash Spill

Sample Description:

Clinch River mile 4.5 near Sugar Grove Valley F Chlorine, residual:

Sampler Project Name: TVA ash spill

**Project Site No.:** 

**Station No.:** 

CLINC004.5RO

Date/Time Collected:

01/22/2009 12:45

Sampler's Name: County:

L. Everett

Sample Matrix:

**ROANE - 73** 

EFO:

Water Knoxville

**Sampling Agency: Billing Code:** 

TDEC-WPC 327.34-20 TDEC-WPC

Send Report To: Agency Invoiced: **Priority Date:** 

TDEC-WPC 01/28/2009

Date/Time Received:

01/23/2009 13:25

Received By:

Ken Hitchman

**Field Determinations** pH: 8.0

Conductivity:

199 6.10 pH Units uMHO

Temperature:

Dissolved Oxygen: 10.04

mg/L

Other: Flow:

**CFS** 

TEST: Digestion Metals	METHOD: EPA 200.2					
ANALYTE	RESULT	UNITS MDL		MQL	ANALYZED BY:	DATE
Digestion Metals	01/26/2009				A Wilson	1/26/2009

TEST: ICP METHOD: EPA 200.7						
ANALYTE	RESULT	UNITS	MDL	MQL	ANALYZED BY:	DATE
Iron	89	μg/L	2.9	10	A Bass	1/27/2009

TEST: ICP-MS	MET	METHOD: EPA 200.8				
ANALYTE	RESULT	UNITS	MDL	MQL	ANALYZED BY:	DATE
Aluminum	64	μg/L	6.4	10	M Pattanayek	1/27/2009
Antimony	U	μg/L	0.33	1	M Pattanayek	1/27/2009
Arsenic	U	μg/L	0.93	5	M Pattanayek	1/27/2009
Barium	33	μg/L	2.5	5	M Pattanayek	1/27/2009
Beryllium	U	μg/L	0.11	1	M Pattanayek	1/27/2009
Cadmium	U	μg/L	0.41	1	M Pattanayek	1/27/2009
Chromium	U	μg/L	2.0	5	M Pattanayek	1/27/2009
Cobalt	0.16J	μg/L	0.04	1	M Pattanayek	1/27/2009
Copper	1.6	μg/L	0.38	1	M Pattanayek	1/27/2009
Lead	0.31J	μg/L	0.10	1	M Pattanayek	1/27/2009
Manganese	35	μg/L	0.42	1	M Pattanayek	1/27/2009
Nickel	0.99J	μg/L	0.25	1	M Pattanayek	1/27/2009
Selenium	U	μg/L	1.3	5	M Pattanayek	1/27/2009
Silver	U	μg/L	0.03	0.25	M Pattanayek	1/27/2009
Thallium	0.07J	μg/L	0.03	1	M Pattanayek	1/27/2009
Vanadium	U	μg/L	3.4	5	M Pattanayek	1/27/2009
Zinc	2.5J	μg/L	1.9	5	M Pattanayek	1/27/2009

Sample Description:

K00002126006

**Project Name:** 

TVA-Ash Spill

Clinch River mile 4.5 near Sugar Grove Valley F Chlorine, residual:

Sampler Project Name: TVA ash spill

**Project Site No.:** 

Station No.:

CLINC004.5RO

Date/Time Collected:

12:45 01/22/2009

Sampler's Name:

L. Everett

County: **Sample Matrix:**  **ROANE - 73** 

EFO:

Water Knoxville

Sampling Agency: **Billing Code:** 

TDEC-WPC 327.34-20

Send Report To: Agency Invoiced: **Priority Date:** 

TDEC-WPC TDEC-WPC 01/28/2009

Date/Time Received:

01/23/2009 13:25

Received By:

Ken Hitchman

MET					
RESULT	UNITS	MDL	MQL	ANALYZED BY:	DATE
U	μg/L	0.13	0.2	A Wilson	1/27/2009
		RESULT UNITS		RESULT UNITS MDL MQL	RESULT UNITS MDL MQL ANALYZED BY:

**Field Determinations** 

Dissolved Oxygen: 10.04

Conductivity:

Temperature:

8.0

199

6.10

pH Units

**uMHO** 

mg/L

**CFS** 

:Hq

Other:

Flow:

MDL - Method Detection Limit

MQL - Method Quantitation Limit

J - Estimated value between MDL and MQL